

Hydrogen Purification

PSA Technology



Typical Applications

- Hydrogen-peroxide production
- Food engineering
- Glass manufacturing
- Metallurgy and heat treatment
- Hydro-cracker purge gas
- FCC overhead gas
- Desulphurization purge gas
- Ammonia purge gas
- Amine production off-gas
- Steam-reforming of natural or bio gas

In today's hydrocarbon market many processes have a requirement for a high quality hydrogen feed, e.g. to chemically react with other feed stocks to form new products, or to provide a higher hydrogen partial pressure, at a reducing atmosphere to prevent oxidation or in fuel-cell applications. The hydrogen required can either be produced by generating it, using a steam-reforming of natural gas or methanol cracking process, or recovering it from a hydrogen rich process stream.

The hydrogen production processes generate a product syn gas that includes by-products like carbon-dioxide, carbon-monoxide, slip-methane, water vapor and traces of argon, nitrogen and oxygen. When hydrogen rich residual gas streams or by-products from chemical or petrochemical processes are purified, then impurities are various hydro-carbons, methanol, hydrogen-sulfide and ammonia. All these impurities need to be removed from the hydrogen before it is usable in the final application.

PSA (pressure swing adsorption) technology is typically used to purify hydrogen rich gas streams. Generon offers this PSA technology - HYDROSWING® - to customers that require ultra-pure hydrogen (99.9% to 99.999+%)

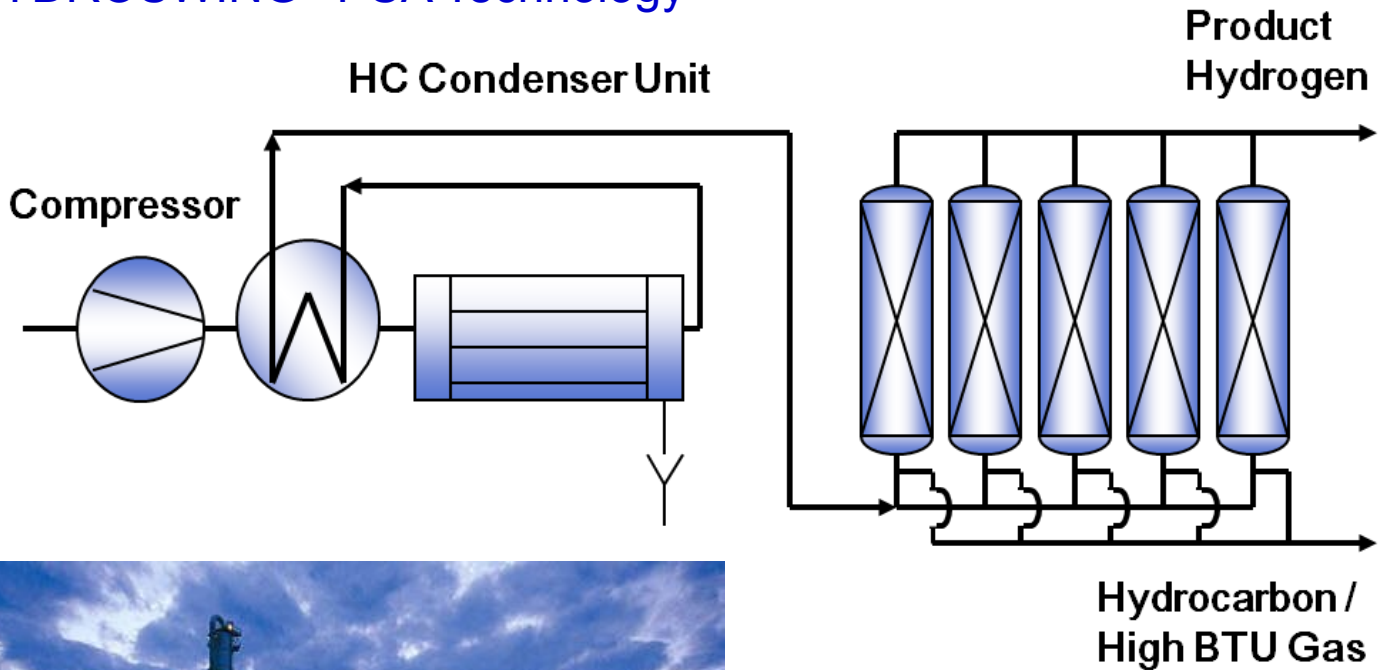
The GENERON® Advantage

- Skid mounted process units are easy to connect and commission
- Remote control operation
- Built to your specifications and for your convenience
- Operation flexibility with automated part-load
- Engineering support from concept to completion



Hydrogen Purification

HYDROSWING® PSA Technology



The HYDROSWING® PSA System Performance:

- Feed Gas pressures up to 350 psi (24 bar)
- 70% to 90% hydrogen recovery
- Hydrogen purities from 99.9% to 99.999+%
- Flow rates of 10 to 2,000 SCFM

When your purity requirements are less stringent (i.e. less or equal to 99.9%), we will compare our GENERON® Membrane technology to find the most economic solution for your hydrogen purification with better hydrogen recoveries up to 99%.



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Pioneering Gas Solutions from Concept to Completion